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Effects of Treatment of Chronic Apical Periodontitis with the use of Depot-, Apex – Foresis With A Combined Method of Fluctuation

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RELEVANCE

All patients before traditional treatment and treatment with depo-, apex - foresis and combined method of fluctuation. the microflora of the root canals of the teeth was studied, X-ray examination and electrodontodiagnostics (EDI) were performed from the mouths of the root canals. According to the radiograph, the absence or presence of destructive changes in the periodontium was recorded, and the state of the root pulp was determined using EDI. If the remains of infected pulp were found in the root canals of the teeth (electrical excitability is below 100 μA), it was devitalized with a devit. The procedures were prescribed after complete devitalization of pulp residues with EDI readings above 100 μA.

KEYWORDS: *Periodontitis, Treatment of Chronic, Fluctuation.*

The evaluation of the immediate results of endodontic dental treatment was carried out within 7 to 14 days based on patient complaints and an objective clinical examination of the condition of the tooth and surrounding tissues.

Evaluation of long-term treatment results was carried out after 6 and 12 months on the basis of patient complaints, objective clinical examination of the condition of the tooth and surrounding tissues, as well as X-ray examination.

To analyze and compare the results of X-ray examination, we used the periapical index PAI proposed by D.Qrstavik et al. (1986) and modified by A.M. Solovieva (1999). The periapical index allowed not only to identify rarefactions in the bone tissue, but also to assess the structure of bone trabeculae and bone marrow spaces in the periapical region (Table 2.2).

Analysis of radiographs using PAI provided for their high quality, in doubtful cases, radiographs were evaluated with a higher PAI score, images of multi-root teeth were evaluated by the highest of the detected values.

In order to study the effect of treatment on the microflora of root canals, a bacteriological study was performed twice - before and after the endodontic treatment course (before root canal filling). To do this, using a sterile paper absorber, the material was taken from the root canal of the tooth and placed in a semi-liquid Ames nutrient medium for subsequent transportation. Further bacteriological research was carried out in accordance with the generally accepted rules of clinical anaerobic microbiology: quantitative sectoral seeding was carried out on media intended for the cultivation of oral bacteria in aerobic and anaerobic conditions. Pure cultures of obligate and facultative anaerobic bacteria under anaerobic conditions were obtained using 5% hemagar prepared on the basis of Brain-Heart Infusion by Difco with the addition of gemin (5 mg/l) and menadion (0.1 mg/l) with mandatory placement of crops in anaerostats with an oxygen-free gas mixture containing 80% nitrogen, 10% hydrogen, 10% carbon dioxide. A palladium catalyst was used to reduce oxygen residues. With the help of a complex of morphological, cultural and biochemical signs, the type of isolated bacteria was determined. Biochemical identification of pure cultures of anaerobic bacteria, streptococci,

staphylococci and gram-negative bacteria was carried out using API (France) and Roche (Germany) test systems.

Clinical strains of facultative anaerobic bacteria obtained from the root canals of teeth, namely: Staphilococcus epidermidis, Streptococcus sanguis, Streptococcus mutans, Streptococcus salivarius, Candida Krusei, Escherichia coli, Clostridium spp, were used to determine the optimal parameters of apex-foresis dosing, providing a pronounced antibacterial effect. For the cultivation of Staphylococcus, streptococci and clostridium, 5% blood agar was used, Escherichia coli - meat-peptone agar, for Candida Krusei - Saburo medium.

In accordance with the existing recommendations, the study was carried out as follows: cultures of microorganisms at a concentration of 1 million cl/ml (according to the optical turbidity standard) were sown on the surface of freshly prepared agar in Petri dishes using a "lawn" method, evenly distributing them over the surface of the agar using a sterile spatula. Then the Petri dish was divided into sectors. A silver-copper electrode was placed in one sector, which was connected to the plus of the current source, and a similar electrode connected to the minus was placed in the other. Only the active working part of the electrodes was immersed in agar. The devices Potok-1 and Elfor-Prof. were used as a direct current source. The procedures were dosed according to the amount of electricity (mA x min). To determine the optimal parameters, 3 doses of exposure were studied: 1.5 mA x min, 2.5 mA x min and 5 mA x min. After the procedure was completed, the electrodes were removed from the agar, and Petri dishes were placed in anaerostats with an oxygen-free gas mixture containing 80% nitrogen, 10% hydrogen, 10% carbon dioxide. A palladium catalyst was used to reduce oxygen residues.

Results. It was recorded after 7 days of incubation of Petri dishes in an anaerostat at 37oC. Accounting was carried out by measuring the diameter of the bacterial colony growth delay zone (in millimeters) around the hole left by the electrode on the agar. Depending on the diameter of the growth retardation zone, the antibacterial effect was assessed as weak (with a diameter of less than 5 mm), medium (with a diameter of 5-10 mm) and high (with a diameter of more than 10 mm).

To amplify the DNA of pathogenic bacteria Actinobacillus actinomycetemcomitans, Prevotella intermedia, Bacteroides forsythus, Treponema denticola and Porphyromonas gingivalis, the multiplex PCR method was used, allowing simultaneous identification of several pathogens. PCR was performed in an amplifier of the Tertsik MS-2 brand (manufacturer – DNA Technology, Moscow). The reaction proceeded in the Matrix temperature control mode according to the following program: denaturation at 95 ° C for 120 s (1 cycle); denaturation at 95 °C for 30 s; annealing at 60 ° C for 30 s; synthesis at 72 oC for 40 s (33 cycles); synthesis at the final stage at 72 oC for 240 s (1 cycle).

Conclusion. The incubation mixture with a final volume of 25 ml contained 19 ml of supermix, 1 unit/ml of polymerase, 5 ml of DNA isolated from the root canals of teeth. To prevent evaporation of the reaction sample, 25 microliters of mineral oil were layered on top of the mixture. The obtained DNA products were determined by electrophoresis in 1.6% agarose gel.

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